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MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

Leibniz Award Conferred on Bert Holldobler

Late last year West Germany recognized Berthold Holldobler, Alexander Agassiz Professor of Zoology, with its most distinguished award in science — the \$1.6 million Leibniz Prize.

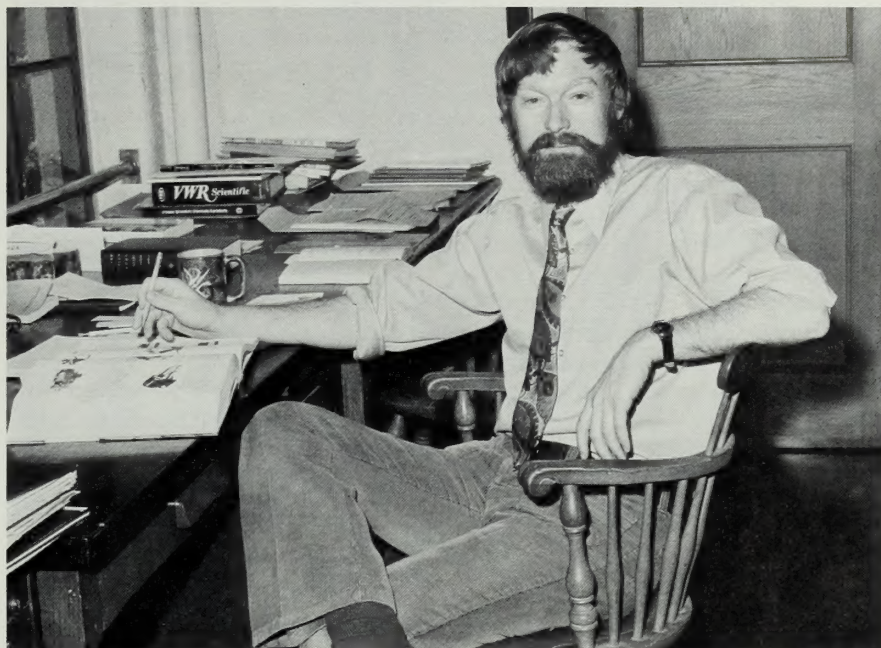
Holldobler received the award, which is named for Gottfried Leibniz, the 17th-century German mathematician and philosopher, for his research into the social biology and behavioral ecology of insects.

In a telephone interview recorded in the *Harvard Gazette* at the time of the award, Holldobler said he was very surprised to be its recipient. The competition for the prize includes leaders not only from all the natural sciences, including physics and chemistry, but from the humanities as well.

Unlike the Nobel, to which it is compared in terms of distinction, the money from the Leibniz Prize cannot be spent by the winner for their own purposes. "The funds must be used for scientific research," Holldobler noted. "But, for the next five years, I can do what I wish -- buy equipment, hire people, anything — without the usual bureaucracy. It gives me great flexibility."

Holldobler, in conjunction with E. O. Wilson, the Baird Professor of Science, has made major discoveries through his experimental work with social insects. "Ants, termites, bees and other insects," he said during the phone interview, "live

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E. O. Wilson Honored



Photo by Lillian Kemp

The Royal Swedish Academy of Sciences recently awarded Profes-

sor E. O. Wilson the Crawford Prize "for fundamental contributions to population biology and the conservation of biological diversity." Wilson, who is the Frank B. Baird, Jr. Professor of Science and Curator of Entomology at the MCZ, will share the prize — worth approximately \$240,000 and considered the equivalent of the Nobel — with Paul Ehrlich of Stanford.

"I'm going to use the money from the award to set up a fund, the interest from which will be used to support research in biodiversity." Wilson is also going to endow the fund with money he will be given with a \$50,000 prize he will receive from L'Institut de la Vie, an affli-

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The Ants by Wilson and Holldobler

More than 700 pages long, weighing more than seven pounds, *The Ants* is a giant of a book. Recently published by Harvard University Press, this exhaustive study of ant life and behavior is a reflection of E. O. Wilson's and Bert Holldobler's life-time commitment to the study of ants.

In Wilson's view, the treatise is long overdue. As he has remarked many times, ants, while individually insignificant, constitute one of the dominant life forms on the planet. Ants make up "10 to 15 percent of the entire animal biomass in most terrestrial environments, turn more soil than earthworms, and play leading roles in the ecology as predators and scavengers."

Replete with tables, charts, exquisite paintings and photographs as well as more than a thousand line drawings, the book covers every aspect of ant life. Chapters are devoted to the classification and origin of ants, the colony life cycle, altruism and kin recognition, communication, caste and division of labor, army ants, foraging strategies, and much, much more.

This social complexity is reflected in the glossary, which, along with the more technical terms used in the text, contains definitions of words such as *altruism*, *aggression*, *war*, *elite*, and *guest*.

Although weighty, the book is expected to be used as a field guide in that it illustrates each of the 292 living genera of ants, providing detailed taxonomic keys to them, region by region. Wilson and Holldobler are currently working on a shorter and more convenient field guide to ants of the world.

The Ants, while encyclopedic in its detailed study of ant life, is not without its lighter touches. In discussing the phenomenon whereby aging worker ants are used in defending the nest, the book notes in a parenthetical aside: "It can be said that a principal difference between human beings and ants is that whereas we send our young men to war, they send they send their old ladies."

Also, in advising how to collect ants using alcohol, the authors, again in parentheses, relate: "An unusual but workable approach was taken by the late astronomer and amateur myrmecologist Harlow Shapley, who used to preserve ants in the strongest spirits of the country he visited. A worker of *Lasius niger* that he placed in vodka while dining with Stalin in the Kremlin is now in the Museum of Comparative Zoology at Harvard."

Wilson

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ate of the French Academy of Sciences. He will share this prize with Peter Raven of the Missouri Botanical Garden.

Professor James J. McCarthy, Director of the MCZ, called the award "a wonderful honor for Ed," noting that it is also a most timely tribute to the importance of the type of science that Wilson has pursued all his life. "What is truly impressive about his contributions," McCarthy said, "is that they extend from the most fundamental work on ant systematics to the development of theoretical concepts that provide underpinning for quantitative studies of ecosystem diversity and structure."

In making the award, the Swedish Academy cited both Wilson and Ehrlich for their research "on naturally fragmented populations and communities, and insights that can be derived from their research have been put to a great deal of use in today's conservation biology, the purpose of which is to stop the degradation of the world's biological treasures."

Wilson was cited specifically for his theory of island biogeography, which he developed in the 1960s with the late Robert H. MacArthur. In their book, *The Theory of Island Biogeography*, Wilson and MacArthur postulated that the number of plant and animal species is usually in or near equilibrium and can be calculated by the size and isolation

of an island. In the most elementary terms, the larger an island and the closer it is to the mainland, the more species it can support.

As the Swedish Academy pointed out, "This relatively simple idea transformed the study of species richness into a quantitative and experimental branch of biology and has proven extremely useful also with respect to 'islands on land,' such as, for example, remnant woodlands in an agricultural landscape or vice versa." It also stated, "Arguably, hardly a single more important work in conservation biology is written today without the author making use of this theory as a launching ramp."

In practical terms, Wilson's theory has been used in planning parks. It has shown that a group of interconnected large natural reserves is better for preserving species richness than smaller, scattered reserves. This approach to conservation is particularly applicable to places like the Amazon basin, where interconnected natural reserves are one method of preserving species in the face of widespread destruction of the rainforest.

Wilson, one of the principal founders of sociobiology and author of *Sociobiology: the New Synthesis* (1975), won the Pulitzer Prize in 1979 for his book *On Human Nature*. The recipient of many awards over the years, Wilson was honored in 1984 with the Tyler Prize for Environmental Achievement, also for his work on biogeography.

Holldobler

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in marvelously functioning, highly organized societies. Such societies are possible because of well-developed communications systems, usually based on sending and receiving chemical messages. I study the evolution of these communications systems, and their role in insect behavior."

Currently on leave at the University of Wurzburg, Holldobler has been on the Harvard faculty and staff of the MCZ since 1973.

A. H. Coleman Retires

Al Coleman came to the MCZ in 1972 to organize and run the photo lab in the new MCZ laboratory building. He had spent the previous 26 years at Yale, 15 of them as a scientific photographer in the Yale Peabody Museum.

Quality has always been Coleman's top photographic priority. "I'd just as soon not do it at all, if I can't do it right. Everyone says, 'If you want it done right, give it to Al Coleman,'" he says. Among the photographs of which he is the most proud is the anglerfish (*lower right*) photographed for researcher Theodore Pietsch in 1975. "It took so long—three or four days—to bleach the background in potassium ferricyanide for water reflections, retouch the photo with maskoid to retain what would have been lost in the bleaching process, enhancing some parts and removing others. I finally got just what I wanted."

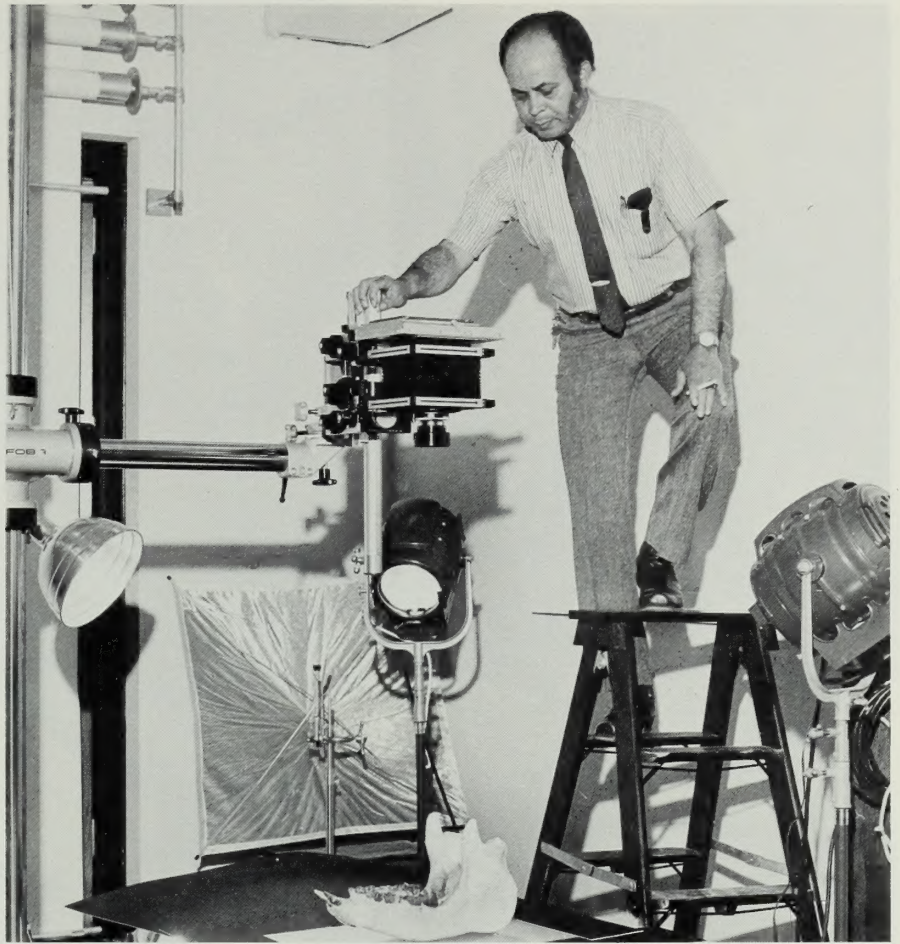
Coleman's photographs have graced the pages of the MCZ *Newsletter* since 1973. Since he plans to remain in the area, he will be available to continue providing the excellent photographic quality which MCZ *Newsletter* readers have come to take for granted. He has just acquired a 4X5 Linhof Super Technika camera with which he plans to experiment with architectural and landscape photography, something he's always wanted to try.

He also plans to study calculus (he has taken two-and-a-half years of mathematics courses at Middlesex Community College while working at the MCZ), attend clock-repairing school, and devote more time to church work.

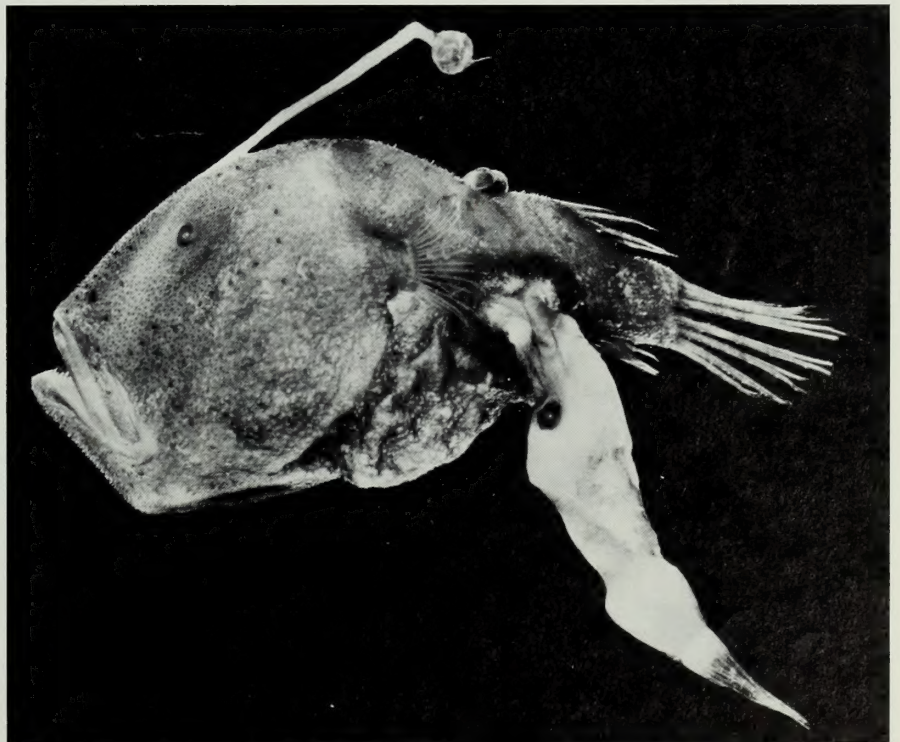
Some of Al's Best:

On the following pages is a selection of photographs from past MCZ *Newsletters* by A. H. Coleman

Anglerfish *Cryptopsaras couesi* Gill with parasitically attached male, photographed for a paper by T. W. Pietsch in *Nature*, Vol. 256, July 3, 1975.



Self-portrait of Al Coleman focussing in on a rhinoceros skull. (Spring, 1973)





These galagos (also known as "bush babies") are relatives of lorises and come from Africa. Their hind legs are much longer than the fore limbs, making them high jumpers. Professor C. Richard Taylor was involved in a study that measured how much energy it takes them to leap. (Fall, 1974)

Baby slow loris (a nocturnal primate found in Sri Lanka, India, and south-east Asia that rarely breeds in captivity) hangs on to mother at MCZ's Concord Field Station. Undergraduate student Polly Parsons was studying the energy costs of brachiating on a rope treadmill in langorous loris-style. (Fall, 1974)

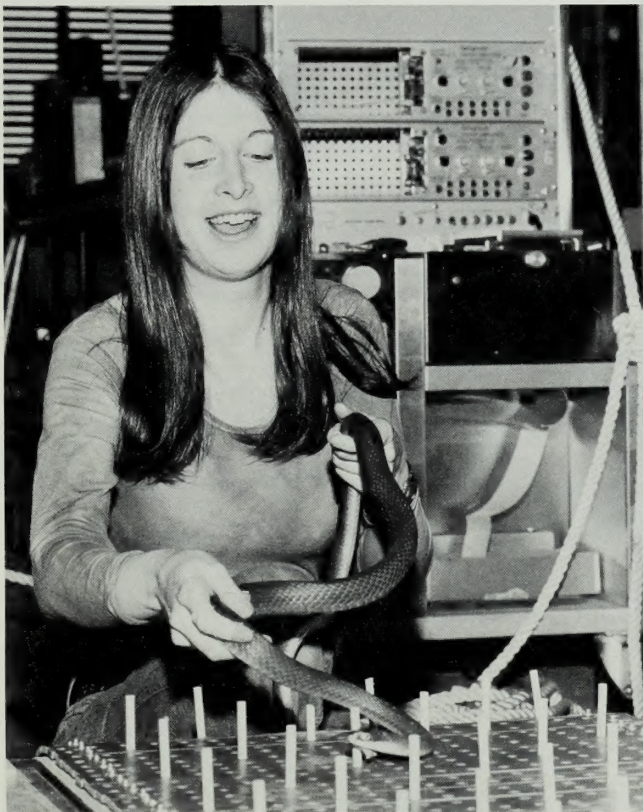




Museum teacher Winifred Eisan and friend stand in front of students' work mounted for visiting parents during the Cambridge Museum Schools Program open house. (Spring, 1985)



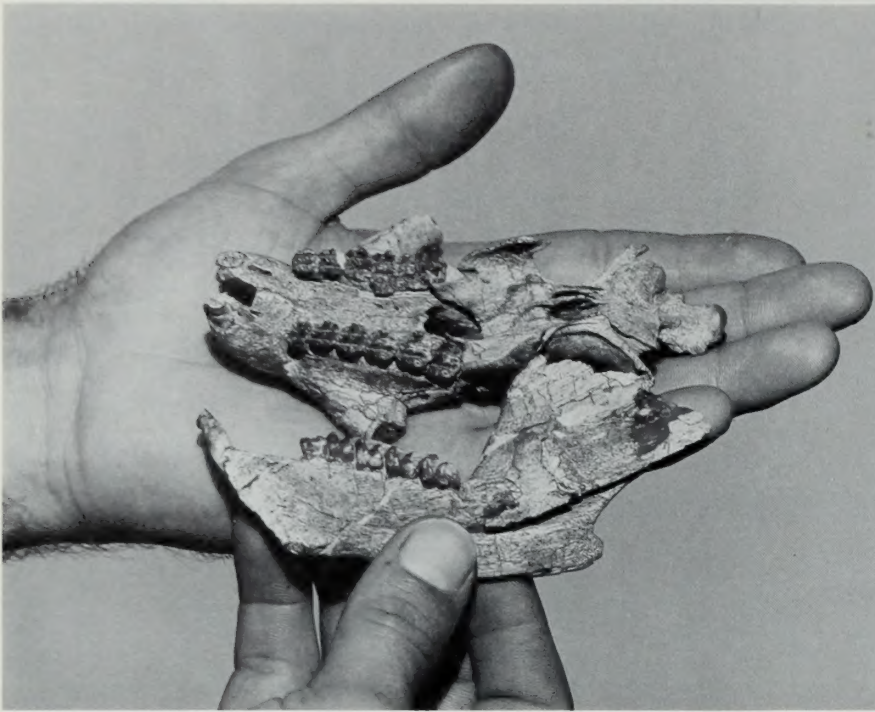
Dr. John D. Constable and Mrs. Harold J. Coolidge at the opening of the Birds-in-Art exhibition in honor of Harvard's 350th anniversary. (Fall, 1986).



Undergraduate student Jamie Deckoff studied snake locomotion by coaxing one of her black racers, a corn snake, to weave its way through her "pegmill." (Spring, 1974).

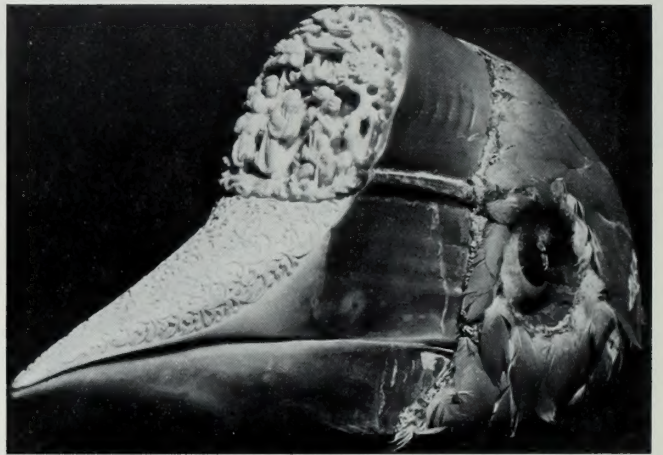


Then graduate student Deedra McClearn (now Assistant Professor at Cornell) studied raccoons using cineradiography to record joint movements as part of her thesis work on locomotion. (Fall, 1979).



A Tritylodont skull from the Kayenta Formation, Arizona, one of the notable finds from a vertebrate paleontology field trip led by Professor Farish A. Jenkins, Jr. (Spring, 1979).

The skull of a helmeted hornbill (*Rhinoplax vigil*), which was donated to the Bird Department by Mrs. Edward J. Dimock. The front of the two-inch casque, consisting of dense material resembling aged ivory, and the entire bill have been intricately carved with a scene of the founding of the Chou Dynasty in the 12th Century. (Fall, 1975).



The echidna's (or spiny ant-eater) Latin name is *Tachyglossus*, which means "sticky tongue." This Australian monotreme has a long tongue specifically adapted to function like fly-paper to trap the staple of its diet—termites. (Fall, 1974).



Setifers, rare insectivores from Madagascar, are rarely seen in the United States. These were born and bred at the Concord Field Station. (Fall, 1974).

MCZ Guide Program Alive and Well

Begun in 1975 the MCZ volunteer guide program continues to thrive with a current roster of 50 guides offering hour-long natural history programs to more than 300 groups a year.

Unlike many museums, the MCZ does not use its guides to show visitors through a standard exhibit tour. Rather, the focus of the guide program is natural history education. Each program, while stressing the basic concepts of the nature of science, has an informational theme that can be contoured to the interest and age level of a specific group.

By drawing on the areas of expertise of individual guides, we are able to offer programs on a dozen subjects utilizing the museum exhibits and hands-on demonstrations. The Animal Adaptation Program, which is taught from the kindergarten to the adult level, for

instance, ranges in scope from the very fundamental to the relatively sophisticated. For very young audiences, the basic differences between animal groups is explained: how are bats like and unlike birds; why whales are not fish, etc. For more advanced audiences, guides will help participants explore the unique ways in which animals have adapted to meet their needs for food, shelter, protection and locomotion. And for an audience already knowledgeable about species and habitats, the evolution of these adaptations is examined. In addition, if the audience is interested in a particular type of adaptation, habitat or animal, the program can be adjusted to incorporate that interest.

To maintain this quality and flexibility, each guide undergoes a rigorous seven-week training ses-

sion at the MCZ. The training session is offered to volunteers each fall and is then followed by an apprenticeship to one of the more experienced guides. On-going training is provided in a monthly luncheon lecture series featuring museum staff and scientists. These guest speakers have discoursed on a variety of topics including the Catholic Church and evolution, preservation and handling of artifacts, adaptations of marine mammals, Wampanoag culture, and fossil fish of New England.

For more information about the MCZ volunteer guide program, call Maureen Stephens at 495 2341.

Upcoming Events

May 2 through June

Songs of the Spring Warblers. This popular exhibition is making its third return engagement at the MCZ. Learn how to untangle specific birds' songs from the cacaphony of a spring morning at listening stations equipped with illustrations of, information about, and individual songs of 39 species of warbler.

Summer

Thanks to the generous contributions of our Friends, we are able to continue the renovation begun last year to expand and revamp our special exhibition area. It will reopen in the fall as the Friends Gallery.

October 2

Return of Beetlemania!, back in the MCZ, bigger and better than ever and featuring outstanding specimens from the MCZ's coleoptera collection, one of the most important in the western hemisphere. Members' Preview and Opening Celebration of the new Friends Gallery 5:30 to 7:00 p.m.

New Friends Gallery Renovation to Begin in July

The Friends of the MCZ have responded to our Annual Appeal drive for funds to renovate and expand the special exhibitions hall. To date, we have more than \$27,000 in hand, which, while less than our original goal, is enough to proceed with the project. Director of Exhibits Ed Haack has modified our plans to be able to work within a budget of just under \$34,000. We hope to raise the additional funds needed before the end of the construction period, which will begin in July and culminate in the opening of a refurbished and enlarged gallery in October, to be called the "Friends of the MCZ Gallery."

The renovation will triple the existing area allotted for special exhibitions and will include improved lighting, construction of a flexible exhibit system, repainting and carpeting. With the expansion of the area, according to Haack, the MCZ "will be able to mount exhibits more ambitious in scope. With the capability to install exhibitions with more three-dimensional and free-standing objects, we will be able to develop more and better collec-

tions-oriented shows." In addition, a larger gallery gives the MCZ the capability of housing more diverse traveling exhibitions, thus bringing to the museum shows that might otherwise be unavailable in the Boston area.

The opening exhibition for the new Friends Gallery, scheduled for this October, will be *Return of Beetlemania!*, an augmented version of one of the most popular public programs ever mounted at the museum. The new *Beetlemania!* will be organized by staff coleopterist, David Furth, who recently arrived at the MCZ from Yale's Peabody Museum. Readers will recall that the stars of our past exhibitions, like *Beetlemania!* have been specimen showcases such as *Nabokov's Butterflies*, *How Spiders Make Their Silk*, and *Fishes of the Twilight Zone*. These exhibitions bring treasures from our research collections into the view of the public, and along with informative text, help to convey to museum visitors the sense of excitement that the MCZ staff feel for their research with these extraordinarily interesting animals.

The MCZ Newsletter is published two or three times a year by the Museum of Comparative Zoology, Harvard University, Oxford Street, Cambridge, Massachusetts 02138; James J. McCarthy, Director.

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Contributing writers: Jane Anderson, Alfred Alcorn*

Upcoming Expeditions with the Friends of the MCZ

The Friends of the MCZ Travel Program continues to attract new travelers to our natural history expeditions as well as providing new adventures for our growing number of "repeaters." With often as many as a third of the members on these expeditions in the repeater category, we are developing a loyal group of experienced travelers who look forward to seeing old friends on new trips.

1990

Our winter programs have included wonderful visits to Tanzania, Antarctica, New Zealand, the Galapagos Islands, and Costa Rica. The MCZ group traveling to the Marquesas in French Polynesia is leaving as of this writing. There is still time to join two upcoming summer trips:

The Desert, the Delta, and the Falls: a repeat of last year's popular safari to Zimbabwe and Botswana featuring visits to the Okavanga Delta and ending at Victoria Falls. Led by Cristian Samper. *June 28—July 13.*

In the Wake of the Vikings: A voyage from Bergen to Reykavik that culminates in a circumnavigation of Iceland. Led by Karel Liem. Co-sponsored with Harvard Alumni Association. Aboard the *M.S. Polaris*. *July 27—August 9.*

Exotic Isles of the Indian Ocean: We have been able to arrange an exciting new cruise for November which starts in Mahe, the Seychelles, and visits the islands of La Digue, Praslin, and Bird Island, then sails to Aldabra, northern Madagascar, Grand Comore, and Zanzibar, and ends at Mombasa on the Kenya coast. A five-day Kenya "mini-safari" is an optional extra. Aboard the newly-refurbished *M.S. Caledonia Star*. Led by Cristian Samper, John McCosker (California Academy of Sciences) and David B. Abernethy (Stanford University)—our first three-way cosponsorship with these institutions. *October 30—November 16.*

Winter and Spring, 1991

Galapagos Islands: A repeat of our popular cruise aboard the *Isabella II*. Led by Steven Austad. *January 13—24* with an optional 6-day extension to Peru.

Belize and Guatemala: A new trip to which includes visits to Belize's Barrier Reef, the rainforest, and the Mayan ruins at Tikal, Guatemala. Led by Judith Perkins. *February 19—March 1.*

We are sponsoring the following four cruises jointly with the Harvard Alumni Association:

In the Footsteps of Scott and Shackleton, a magnificent 30-day expedition led by James J. McCarthy, aboard the *World Discoverer*, which leaves from New Zealand and visits the huts of the legendary explorers, the U.S. McMurdo Station, Cape Adare and the Antarctic Peninsula. *January 8—February 6.*

Voyage to Antarctica, a repeat of this year's successful 15-day program which approaches Antarctica via the Drake Passage and visits King George Island, Port Lockroy, Half Moon Island and other prolific penguin-nesting areas at the height of the season. Aboard the *Illiria*. Led by Michael McElroy. *January 14—18.*

Patagonia, the Falklands, and Cape Horn: A cruise aboard the *Illiria* for those who have perhaps visited Antarctica and now wish to learn more of the region just north. The Falklands have been blessed by human neglect, leaving the over 50 species of birds, including the king penguins, a species found only on these islands, unaffected by "progress." Sea lions, fur seals, and rockhopper and Magellanic penguins are also local inhabitants. *February 28—March 13.*

The Island World of Indonesia: A cruise that includes visits to Bali, Java, and the Islands of the Java Sea aboard the *Renaissance*. A wonderful itinerary which includes Komodo Island, home of the Komodo dragon, and an overnight on

Sulawesi to visit Tana Toraja, where death informs life in an all-pervasive dramatic fashion. Led by Karel Liem and Peter Timmer. *March 11—27.*

Call 617-495-2463 for more information about any of these travel opportunities.

Discover Africa with the MCZ in 1991

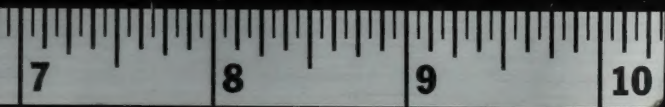
The MCZ has been taking travelers on first-class Africa safaris since 1980. For 1991 we plan four choices to appeal to first-timers, those who would like to try camping—luxury-style, and for seasoned veterans ready for the newest Africa frontier.

Kenya Highlights is a brief, affordable lodge safari, the perfect introduction to the wonders of Kenya including Samburu and Masai Mara. Led by Judith Perkins. *January 19—31.*

Kenya Under Canvas is a new tented safari which takes travelers into the Matthews Range and provides opportunities for walking and night drives. Led by Farish Jenkins and Ken Dial. *January 13—27.*

Tanzania Under Canvas is a repeat of our perennially popular tented safari which includes the Serengeti and Ngorongoro Crater. Led by Marc Allard and Alfred Alcorn. *February 19—March 1.*

Namibia: Etosha Pan and Skeleton Coast, a new adventure to the southern part of Namibia with its remote and visually captivating Skeleton Coast and the sprawling desert saltpan known as Etosha Pan where the permanent springs attract enormous herds of plains animals during the dry season. Optional extension to the Okavanga Delta and Victoria Falls. Led by Cristian Samper. *August/September.*



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